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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,617	11/15/2001	Minoru Matsuda	0505-0923P	7407
2292	7590	12/31/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CORRIGAN, JAIME W	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,617

Applicant(s)

MATSUDA ET AL.

Examiner

Jaime W Corrigan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 7, 12 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Amendment filed on 16 October 2003. Claims 1-2, 10 have been amended. Claims 7, 12, 15 have been withdrawn. Overall, claims 1-15 are pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads (PN 1,524,150) in view of Jackson (PN 3,732,745).

Rhoads discloses a plurality of intake and exhaust valves (See Figure 1 (18)) for opening and closing intake and exhaust ports of said combustion chambers being provided at said cylinder head portions (See Figure 1 (11)); a plurality of valve camshafts (See Figure 1 (27)) operating in connection with said crankshaft, said valve camshafts being rotatably supported at said crankcase portions (See Figure 1 (28)); a plurality of valve-operating members (See Figure 2 (42)) for operating said intake and exhaust valves; and a plurality of oscillating arms (See Figure 1 (29)) operating in connection with said valve camshafts being connected with said valve-operating members through pull rods (See Figure 1 (40, (40')) disposed respectively on lateral sides of said cylinder banks.

Rhoads fails to disclose said camshafts being fixed to driven gears, said crankshaft being fixed to a driving gear, said driven gears being driven by said driving gear through idle reduction gears.

Jackson teaches that it is conventional in the art to utilize said camshafts (See Figure 3 (12)) being fixed to driven (See Abstract, Figure 3 (22)) gears, said crankshaft (See Figure 3 (11)) being fixed to a driving gear (See Figure 3 (20)), said driven gears being driven by said driving gear through idle reduction gears (See Figure 3 (23), (25), Column 3 Lines 15-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the idler reduction gears taught by Jackson in the Rhoads device since it would enhance its power output and its high speed performance characteristics.

Claims 2-6, 8-9, 11, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads in view of Jackson as applied to claims 1, 10 above, and further in view of Woodgate (GB 138,803).

Rhoads discloses said oscillating arms (See Figure 1 (29)) operating in connection with said valve camshafts (See Figure 1 (27)) and said valve-operating members (See Figure 2 (42)) for operating said intake and exhaust valves are respectively connected to each other through said pull rods (See Figure 1 (40, (40')) disposed on both sides of said cylinder banks; a plurality of valve springs (See Figure 1 (24)), said intake and exhaust valves (See Figure 1 (18)) being energized in a closing

direction by said valve springs

Rhoads fails to disclose intake and exhaust camshafts; camshafts on both sides of crankcase; a horizontally opposed engine; a timing gear mechanism.

Woodgate teaches that it is conventional in the art to utilize valve camshafts include at least one intake valve camshaft (See Figure 1 (d)) and at least one exhaust valve camshafts (See Figure 1 (d)); said intake and said exhaust valve camshafts are disposed respectively on both sides of said crankcase (See Figure 1 (f)) portions with said crankshaft (See Figure 1) therebetween; said engine is a horizontally opposed (See Figure 1 Page 2 Lines 28-32), four valve-internal combustion engine; comprising a timing gear (See Page 1 Lines 5-7) mechanism, said valve camshafts (See Figure 1 (d)) being rotationally driven by the crankshaft through said timing gear mechanism (See Page 1 Lines 5-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the plurality of camshafts taught by Woodgate in the Rhoads device since it would improve engine power.

Response to Arguments

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamamoto et al. (PN 5,357,915), Ito (JP57052609A), Asano et al. (PN 4,671,223), Okano (PN JP58148209A) disclose similar valve systems.

Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2nd Friday off.

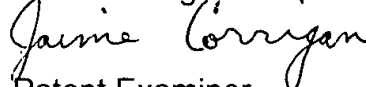
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

JC

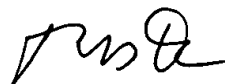
Jaime Corrigan



Patent Examiner

December 26, 2003

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THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700